SVKM's
D. J. Sanghvi College of Engineering

Program: B.Tech in Computer Engineering **Academic Year: 2022** **Duration: 3 hours**
Date: 05.01.2023
Time: 10:30 am to 01:30 pm
Subject: Processor Organization and Architecture (Semester V) **Marks: 75**

Instructions:
1) **All Questions are Compulsory.**
2) **All questions carry equal marks.**
3) **Answer to each new question is to be started on a fresh page.**
4) **Figures in the brackets on the right indicate full marks.**
5) **Assume suitable data wherever required, but justify it.**
6) **Draw the neat labelled diagrams, wherever necessary.**

Question No.		Max. Marks
Q1 (a)	Draw the Flowchart and Implement Restoring Division Algorithm for (11) / (3) **OR** Draw the Flowchart for Booth's Algorithm and Implement (-7 X 3)	[10]
Q1 (b)	Differentiate between Von Neumann Model and Harvard Architecture	[05]
Q2 (a)	Illustrate Cache Mapping techniques with neat Sketch.	[08]
Q2 (b)	Explain Memory Hierarchy and its characteristics.	[07]
Q3 (a)	Define Addressing Modes and Explain Different Addressing modes of 8086 microprocessor with example. **OR** Explain different pins used in 8086 micro processor with neat diagrams.	[10]
Q3 (b)	Construct an ALP to transfer a block of data from one segment to another using string instructions.	[05]
Q4 (a)	What are interrupts? list different types of interrupts in 8086 microprocessor. Explain dedicated interrupts. OR Write an ALP to sort the given array of 5 nos in ascending order.	[08]
Q4 (b)	Explain the 5 Stage Integer Pipeline in Pentium Processor. OR Explain the Branch Prediction Concept in Pentium Processor.	[07]
Q5 (a)	Sketch the Architectural Block diagram of 8051 Microcontroller and Explain different components.	[10]
Q5 (b)	List different instruction Sets of 8051 Microcontroller. Illustrate different Arithmetic instructions of 8051 Microcontroller with Example	[05]

*****All the Best*****